

ABSTRACT

SIGNALLING METHOD

An electrical signalling system comprises a modulator arranged to accept information and encode that information in an alternating signal containing repeated rising and falling edges, the encoding being by way of the time between consecutive rising or consecutive falling edges, a transmission path for the signal from modulator to a demodulator, where the demodulator is arranged to detect the signal edge and store a record of the signal around that edge and compare a subsequent part of the signal with that record thereby to detect a like edge and detect the time difference between like edges. Such a system need not detect the precise position of the edge but detects that an edge has occurred within a short time frame, and retains an image of the signal during that period. That image is compared with a subsequent part of the signal, and where the subsequent signal differs only minimally from the record the system deems that a second like edge has occurred. Thus, although the precise position of the edge may or may not be detected by this system, the time delay between respective like edges is detected. The transmission path can be imperfect, for example inductive. The system is capable of sending recognisable signals along a three-phase electrical supply cable. The invention is particularly applicable to the supply of information from downhole sensors in the oil and gas extraction industries. Two signals can be sent simultaneously by also detecting unlike edges and the time difference therebetween. Multiple sources of data can be included consecutively.